

What is Claimed is:

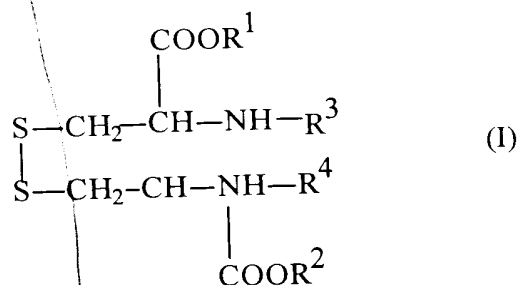
1. A method of suppressing immune responses, comprising administering to a patient in need thereof an effective amount of a composition comprising a substance capable of reducing the content of reductive glutathione in macrophages.

2. The method of Claim 1, wherein the substance has a intramolecular disulfide bond.

3. The method of Claim 2, wherein the substance is a cystine derivative.

4. The method of Claim 3, wherein the cystine derivative is represented by formula

(I):



wherein

R^1 and R^2 , independently from each other, represent an alkyl group, and
 R^3 and R^4 , independently from each other, represent an acyl group or a peptidyl group.

5. The method of Claim 4, wherein R^1 and R^2 , independently from each other, represent an alkyl group having 1 to 12 carbon atoms.

6. The method of Claim 4, wherein R^3 and R^4 , independently from each other, represent an acyl group having 1 to 12 carbon atoms.

7. The method of Claim 6, wherein R^1 and R^2 , independently from each other, represent an alkyl group having 1 to 12 carbon atoms.

8. The method of Claim 4, wherein R^3 and R^4 , independently from each other, represent an peptidyl group having 1 to 10 amino acid residues.

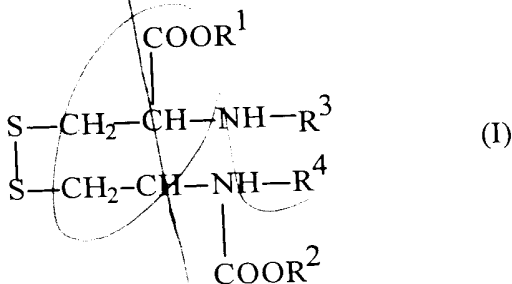
9. The method of Claim 8, wherein R^1 and R^2 , independently from each other, represent an alkyl group having 1 to 12 carbon atoms.

5 10. The method of suppressing immune responses according to Claim 1, wherein the substance is capable of selectively removing reductive macrophages which contain an increased amount of intracellular reductive glutathione.

10 11. The method of suppressing immune responses according to Claim 10, wherein said substance is a compound in which a cytotoxic DNA alkylating agent having is conjugated with glutathione, or one which shows a cytotoxicity after being incorporated into macrophages as a precursor.

15 12. The method of suppressing immune responses according to Claim 1, wherein the patient is in a cachectic condition caused by cancers, or suffering from diabetes, gastrointestinal inflammatory diseases, chronic rheumatoid arthritis, hepatitis, hepatic cirrhosis, hypersensitive interstitial pneumonia, pulmonary fibrosis or autoimmune inflammatory diseases.

13. A food, a nutrient or an infusion, containing a cystine derivative represented by formula (I):



wherein

R^1 and R^2 , independently from each other, represent an alkyl group, and

R^3 and R^4 , independently from each other, represent an acyl group or a peptidyl group.

5 14. The food, nutrient or infusion of Claim 13, wherein R^1 and R^2 , independently from each other, represent an alkyl group having 1 to 12 carbon atoms.

15. The food, nutrient or infusion of Claim 13, wherein R^3 and R^4 , independently from each other, represent an acyl group having 1 to 12 carbon atoms.

16. The food, nutrient or infusion of Claim 13, wherein R^1 and R^2 , independently from each other, represent an alkyl group having 1 to 12 carbon atoms.

10 17. The food, nutrient or infusion of Claim 13, wherein R^3 and R^4 , independently from each other, represent an peptidyl group having 1 to 10 amino acid residues.

18. The food, nutrient or infusion of Claim 13, wherein R^1 and R^2 , independently from each other, represent an alkyl group having 1 to 12 carbon atoms.

19. The food, nutrient or infusion of Claim 13, which is a food.